



PROF. DR. DR. H.C. MULT.

MICHAEL BACKES

Founding Director
CISPA Helmholtz Center for Information Security

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Current positions. Michael Backes is the Founding Director of the CISPA Helmholtz Center for Information Security, the 18th research center of the Helmholtz Association, which he ran as CEO from 2017 until 2026. He is a Professor of Computer Science at Saarland University and a Distinguished Affiliated Professor at the Technical University of Munich. He was appointed to his professorship in 2005 at the age of 26 – at the time the youngest tenured professor in Germany.

Education and early career. Michael Backes was born in Lebach, Germany, in 1978. After completing his community service at a school for deaf children, he studied computer science and mathematics at Saarland University. He obtained his Diploma in Computer Science after only five semesters, followed by a second Diploma in Mathematics and his PhD in Computer Science within just one more year. He then joined IBM Research in Zurich as a research staff member before returning to Saarland University as a professor.

Scientific achievements. Prof. Backes is an internationally recognized authority in information security and privacy and is regarded as one of the defining figures of the field worldwide. His research focuses on trustworthy machine learning, novel methods for protecting personal data, and foundational approaches to software and system security, and it has shaped these fields nationally and internationally. Over two decades, his work has spanned the unification of formal verification and cryptographic security proofs – including the co-development of the paradigm of reactive simulatability, also known as universal composability –, machine-readable privacy policies, mobile and Android security, and trustworthy computation on outsourced data.

He turned to the security and privacy of machine learning long before the topic reached the mainstream. He laid the foundations of membership inference, today a standard method for determining whether machine-learning models reveal their training data, and he is a co-inventor of swarm learning, a privacy-preserving paradigm for distributed machine learning. His group's work on jailbreak attacks against large language models, published at ACM CCS 2024, is the most cited paper published since 2024 at the leading security conferences.

His research is documented in more than 400 peer-reviewed publications – among them more than 120 papers at the four flagship conferences in cybersecurity – and more than 220 further research outputs, which have been cited more than 39,000 times (h-index 100). His results have repeatedly been translated into innovative applications with impact far beyond academia.

Research leadership. Michael Backes has been entrusted with leading major research programs. He founded the national Competence Center CISPA in 2011 and led it as Scientific Director until its transformation into the CISPA Helmholtz Center in 2018; he served as Speaker of the DFG Collaborative Research Center “Methods and Tools for Understanding and Controlling Privacy” and as Vice-Speaker of the DFG Cluster of Excellence “Multimodal Computing and Interaction”, and he founded the Helmholtz Medical Security, Privacy and AI Research Center as a joint initiative of six Helmholtz centers. He was Director of the CISPA-Stanford Center for Cybersecurity Research. He has served as program chair, steering committee member and program committee member of the major international security conferences, including ACM CCS and the IEEE Symposium on Security and Privacy.

Building CISPA. Building the CISPA Helmholtz Center for Information Security is the most far-reaching result of his work. Michael Backes led CISPA from a university research group to a national Competence

Center, founded in 2011 with funding from the Federal Ministry of Education and Research, and on to an independent research center of the Helmholtz Association, which he built as its Founding Director. This path was neither prescribed nor an obvious next step: from 2011 onward, he deliberately pursued the goal of turning a time-limited competence center into a permanent, internationally leading institution – in a research system in which the foundation of an entirely new Helmholtz center is an exceptionally rare decision.

Under his leadership, CISPA grew to more than 750 people from all over the world, with an annual budget approaching €100 million. He recruited more than 50 faculty members, many of them from leading institutions such as EPFL, Oxford, ETH Zurich, Harvard, NYU and the National University of Singapore. As early as 2021, only three years after its establishment, CISPA ranked first worldwide in computer security according to CSRankings. Researchers at the center have produced more than 1,300 conference publications, more than 700 of them at the top venues of their fields, and hold 18 ERC grants. In 2025, external reviewers rated the center's first seven-year build-up phase as outstanding throughout. Over the course of his career, he has mobilized or overseen more than €900 million in research funding, institutional financing and strategic investment.

Michael Backes established entrepreneurship as a systematic third pillar alongside frontier research and talent development. Around 35 start-ups emerged from the CISPA environment under his leadership, raising more than €30 million in external early-stage financing, and a dedicated CISPA Venture Campus was prepared as the next stage. To address the shortage of cybersecurity talent, he conceived Bachelor's and Master's programs in cybersecurity, including a Master's program with an entrepreneurial orientation, and established doctoral cooperation agreements with outstanding universities, each chosen to strengthen research and the education of new talent at the same time.

Awards and honors. His work has earned him the most renowned distinctions of his field, in particular the ERC Synergy Grant, Europe's most highly endowed research award, which he won as lead speaker – the first ERC Synergy Grant ever awarded in computer science. Further distinctions include the Karl Heinz Beckurts Prize, an ERC Starting Grant, the Springer Cybersecurity Award, the NSA Cybersecurity Research Award, the CNIL-INRIA Privacy Award, the Caspar Bowden Privacy Award, the IBM Faculty Award, two IBM Outstanding Achievement Awards, a Max Planck Fellowship, the Fellowships of both ACM and IEEE, and several best paper awards. He holds honorary doctorates from the Université de Lorraine (2018) and Leibniz Universität Hannover (2025), and he is a member of Academia Europaea and of acatech, the German Academy of Science and Engineering.

In 2009, Michael Backes became the first German to receive the MIT TR35 Award, which honors the world's top 35 researchers and innovators under the age of 35, across all disciplines, whose “accomplishments are poised to have a dramatic impact on the world as we know it”.

Talent and transfer. Identifying and developing exceptional talent is a defining element of his career. Attracting leading scientists who can choose among the world's best universities, research laboratories and technology companies requires scientific credibility, personal trust and a compelling institutional vision – the basis on which he built the CISPA faculty. At the same time, he has multiplied talent: thirty former scientists from his research group have been appointed to faculty positions worldwide, and many others hold senior positions in industry. His teaching has repeatedly been recognized with awards for the best teaching, in particular the Teaching Award of the State of Saarland.

Michael Backes has consistently translated research into practice. His results have been transferred through numerous public-private partnerships and industry collaborations – among others, his protocol analysis techniques were used to verify protocols of IBM, Intel and Hewlett-Packard – as well as through spin-off companies and open-source tools used by developers and security practitioners worldwide.

Public recognition. Michael Backes has given more than 500 invited talks and keynotes – in political settings such as the European Parliament or the leadership bodies of national parties; in scientific settings such as the Royal Society and the major international security conferences; and in industry settings, from corporate leadership events to leading business forums. He is regularly listed among Germany's most influential IT personalities and is an honorary citizen and future ambassador of the city of St. Ingbert.